

WHAT IS CLAIMED IS:

1. A method for operating a display capable of presenting content within a presentation space, the method comprising the steps of:
locating a person in the presentation space;
defining a viewing space comprising less than all of the presentation space and including the location of the person; and
presenting content so that the presented content is discernable only within the viewing space.
2. The method of claim 1, further comprising the steps of detecting changes in the location of the person during presentation of the content and changing the viewing space so that the viewing space follows the location of the person.
3. The method of claim 1, wherein the viewing space is limited to a space that is no less than the eye separation of eyes of the person.
4. The method of claim 1, wherein the viewing space is defined in part based upon a shoulder width of the person.
5. The method of claim 1, wherein the viewing space is defined at least in part by at least one of a near viewing distance comprising a minimum separation from the display at which the person can discern the content presented to the viewing space and a far viewing distance comprising a maximum distance from the display at which a person can discern content presented to the viewing space.
6. The method of claim 1, wherein the step of presenting the content to the viewing space comprises using the display to present content in the form of patterns of emitted light and filtering the emitted light so that the content can be discerned only in the viewing space.

7. The method of claim 1, wherein the step of presenting the content to the viewing space comprises using the display to present content in the form of patterns of emitted light and focusing patterns of emitted light so that the content can be discerned only in the viewing space.

8. The method of claim 1, wherein the step of presenting the content to the viewing space comprises using the display to present content in the form of patterns of emitted light and directing the content so that the content can be discerned only in the viewing space.

9. The method of claim 1, further comprising the steps of detecting at least one additional person in the presentation space, defining an additional viewing space for each additional person and presenting the content to each viewing space.

10. The method of claim 1, further comprising the steps of detecting movement of a detected person outside of the presentation space during presentation of the content and automatically suspending presentation of the content to a viewing space for that person.

11. The method of claim 1, further comprising the step of presenting audio content directed to the viewing space.

12. The method of claim 1, wherein the viewing space is less than all of a vertical portion of the presentation space.

13. The method of claim 1, wherein the viewing space is less than all of a horizontal portion of the presentation space.

14. A method for presenting content using a display, the method comprising the steps of:

detecting people in a presentation space within which content presented by the display can be observed;

identifying people in the presentation space who are authorized to observe the content;

defining a viewing space for each authorized person with each viewing space comprising less than all of the presentation space and including space corresponding to an authorized person; and,

presenting content to each viewing space.

15. The method of claim 14 wherein the step of identifying people in the presentation space who are authorized to observe the content comprises classifying each detected person in determining whether each detected person is authorized to observe the content, based upon the classification for that person.

16. The method of claim 14 wherein the step of identifying people in the presentation space or authorized to observe the content comprises identifying each detected person and using the identity of the person to determine whether the person is authorized to observe the content.

17. The method of claim 14 wherein the step of identifying people in the presentation space who are authorized to observe content comprises determining a profile for each person and using the profile for each person to determine whether the person is authorized to observe the content.

18. The method of claim 17 further comprising the step of determining a profile for the content and wherein the step of using the profile for each person to determine whether the person is authorized to observe the content comprises comparing the profile for each person to the profile for the content.

19. The method of claim 18, further comprising the steps of monitoring the display space during presentation of the content to detect whether more than one person enters a common viewing space, combining the profiles of

each person in the common viewing space and determining whether to present content to the common viewing space based upon the combined profiles of the viewers and the profile of the content.

20. The method of claim 19, wherein each personal profile contains viewing privileges and the content profile contains access privileges wherein the viewing privileges are combined in an additive manner and the common viewing space is defined based upon the combined viewing privileges and the access privileges.

21. The method of claim 19, wherein the personal profiles contain viewing privileges, and the content profile contains access privileges wherein the step combining viewing privileges are combined in a subtractive manner and the presentation of the content is adjusted based upon the combined viewing privileges and the access privileges.

22. The method of claim 18, wherein the content profile contains viewing privileges associated with particular portions of the content and wherein display of particular portions of the content to the common presentation space is adjusted based upon the personal profiles of the persons in the common viewing space and the viewing privileges of associated with those particular portions.

23. The method of claim 14, wherein the step of detecting people in the presentation space comprises capturing an image of the presentation space and analyzing the image to detect the people.

24. The method of claim 14, wherein the step of detecting people in the presentation space comprises detecting radio frequency signals from transponders in the presentation space and identifying people in the presentation space based upon the detected radio frequency signals.

25. The method of claim 14, further comprising the step of detecting signals from sensors adapted to detect encroachment of the presentation space and adjusting the presentation of the content when such encroachment is detected.

26. A method for operating a display capable of presenting content discernable in a presentation space, the method comprising the steps of:

selecting one of a general display mode and a restricted display mode;

presenting content to the presentation space when the general display mode is selected; and

performing, when the restricted display mode is selected, the steps of:

locating a person in the presentation space;

defining a viewing space comprising less than all of the presentation space and including the location of the person; and

presenting content so that the presented content is discernable only within the viewing space.

27. The method of claim 26, wherein the step of selecting one of a general display mode and a restricted display mode comprises selecting a mode based upon analysis of the content.

28. The method of claim 26, wherein the step of selecting one of a general display mode and a restricted display mode comprises selecting a mode based upon a personal profile.

29. The method of claim 26, wherein the step of selecting one of a general display mode and a restricted display mode comprises selecting a mode based upon the content of the scene.

30. A method for operating a display capable of presenting content within a presentation space, the method comprising the steps of:

- selecting content for presentation;
- determining access privileges for a person to observe the content;
- operating the display in a first mode wherein the content is displayed to the presentation space when the access privileges are within a first range of access privileges; and
- operating the display in a second mode when the access privileges are within a second range of access privileges wherein during the second mode, a viewing space is defined comprising less than all of the presentation space and including the location of the person and content so that the presented content is discernable only within the viewing space.

31. A control system for presenting images to at least one person in a presentation space, the control system comprising:

- a presentation space monitoring system generating a monitoring signal representative of conditions in the presentation space within which content presented by a display can be discerned;
- an image modulator positioned between the display and the presentation space with the image modulator adapted to receive patterns of light presented by the display and to modulate the patterns of light emitted by the display so that the patterns of light are discernable only within spaces defined by the image modulator; and,
- a processor adapted to determine the location of each person in the presentation space based upon the monitoring signal and to determine a viewing space for each person in said presentation space comprising less than all of the presentation space and also including the location of each person;

wherein the processor causes the image modulator to modulate the light emitted by the display so that the pattern of light emitted by the display is discernable only in the viewing space.

32. The control system of claim 31, wherein the presentation space monitoring system comprises an image capture system adapted to capture an image of the presentation space and the processor detects people in the presentation space by analyzing the captured image.

33. The control system of claim 31, wherein the presentation space monitoring system comprises a radio frequency signal detection system adapted to detect signals in the presentation space and the processor detects the person in the presentation space based upon the detected radio frequency signals.

34. The control system of claim 31, wherein the presentation space monitoring system comprises a sensor system adapted to sense conditions in the presentation space and to generate the monitoring signal based upon the sensed conditions and the processor detects the person in the presentation space based upon the monitoring signals.

35. The control system of claim 31, wherein the processor is further adapted to detect changes in the location of the person during presentation of the content and to change the viewing space to so that the viewing space follows the location of the person.

36. The control system of claim 31, wherein the viewing space is limited to a space that is no less than the eye separation of eyes of the person.

37. The control system of claim 31, wherein the viewing space is defined in part based upon a shoulder width of the person.

38. The control system of claim 31, wherein the viewing space is defined at least in part by at least one of a near viewing distance comprising a minimum separation from the display at which the person can discern the content presented to the viewing space and a far viewing distance comprising a maximum

distance from the display at which a person can discern content presented to the viewing space.

39. The control system of claim 31, wherein the image modulator comprises a filter that is adjustable in response to signals from the processor to filter the emitted light so that the content can be discerned only in the viewing space.

40. The control system of claim 31, wherein the image modulator comprises a lens system to focus patterns of emitted light so that the content can be discerned only in the viewing space.

41. The control system of claim 31, wherein the image modulator comprises an array of lenslets adapted to direct light in a plurality of directions and wherein the processor causes the display to present images in a manner such that the images are visible in one of the directions.

42. The control system of claim 31, wherein the image modulator comprises an optical system that focuses the patterns of light emitted by the display so that the light forms an image only after a near depth of field.

43. The control system of claim 31, wherein the image modulator comprises an optical system that focuses the patterns of light emitted by the display so that the light forms an image only before a far depth of field.

44. The control system of claim 31, wherein the image modulator comprises a set of baffles that direct light to the viewing space.

45. The control system of claim 31, wherein the modulator comprises a coherent fiber optic bundle which provides a channel structure of paths of generally transparent material.

46. The control system of claim 31 wherein the modulator comprises an array of individual micro-lens having physical light absorbing barriers between each micro-lens.

47. The control system of claim 31, wherein the processor is further adapted to detect at least one additional person in the presentation space, define an additional viewing space for each additional person and cause the image modulator and display to cooperate to present the content to each viewing space.

48. The control system of claim 31, wherein the processor is further adapted to detect movement of a detected person outside of the presentation space during presentation of the content and automatically suspending presentation of the content to a viewing space for that person.

49. The control system of claim 31, further comprising a directed audio system for directing audio signals to the viewing space.

50. A control system for a display adapted to present images in the form of patterns of light that are discernable in a presentation space, the control system comprising:

- a presentation space monitoring system generating a monitoring signal representative of conditions in the presentation space;

- an image modulator positioned between the display and the person with the image modulator adapted to receive patterns of light presented by the display and to modulate the patterns of light emitted by the display so that the patterns of light are discernable only within spaces defined by the image modulator; and,

- a processor adapted to detect each person in the presentation space based upon the monitoring signal, to identify authorized persons based on this comparison; and to determine a viewing space for each authorized person said viewing space comprising less than all of the presentation space and also including the location of the person;

wherein the processor causes the image modulator and the display to cooperate to modulate the light emitted by the display so that the pattern of light emitted by the display is discernable only viewing spaces for authorized persons.

51. The control system of claim 50, wherein the processor identifies people in the presentation space who are authorized to observe the content by classifying each detected person, and determines whether each detected person is authorized to observe the content, based upon the classification for that person.

52. The control system of claim 51 wherein the processor is adapted to identify people in the presentation space who are authorized to observe the content by identifying each detected person and using the identity of the person to determine whether the person is authorized to observe the content.

53. The control system of claim 50 wherein the processor is adapted to people in the presentation space who are authorized to observe content by determining a profile for each detected person and using the profile for each detected person to determine whether the detected person is authorized to observe content.

54. The control system of claim 53 wherein the processor is further adapted to determine a profile for the content and wherein the processor uses the profile for each person to determine whether each person is authorized to observe the content by comparing the profile for each person to the profile for the content.

55. The control system of claim 53 wherein the processor examines the monitoring signal to detect whether more than one person enters a common viewing space, combines the profiles of each person in the common viewing space and determines whether to present content to the common viewing

space based upon the combined profiles for each person and the profile of the content.

56. The control system of claim 53, wherein each personal profile contains viewing privileges and the content profile contains access privileges wherein the viewing privileges are combined in an additive manner and the common viewing space is defined based upon the combined viewing privileges and the access privileges.

57. The control system of claim 50, wherein the personal profiles contain viewing privileges, and the content profile contains access privileges wherein the step combining viewing privileges are combined in a subtractive manner and the presentation of the content is adjusted based upon the combined viewing privileges and the access privileges.

58. The control system of claim 50, wherein the content profile contains viewing privileges associated with particular portions of the content and wherein display of particular portions of the content to the common presentation space is adjusted based upon the personal profiles of the persons in the common viewing space and the viewing privileges of associated with those particular portions.

59. The control system of claim 50, wherein the step of determining a profile for each of each person by classifying each person and assigning viewing privileges to each person based upon the classification.

60. A control system for a display adapted to present images in the form of patterns of light that are discernable in a presentation space, the control system comprising:

a presentation space monitoring system generating a monitoring signal representative of conditions in the presentation space;

an image modulator positioned between the display and the person with the image modulator adapted to receive patterns of light presented by the display and for modulating the patterns of light emitted by the display;

a processor adapted to select between operating in a restricted mode and a general mode;

with the processor further being adapted to, in the general mode, cause the image modulator and display to present content in a manner that is discernable throughout the display space and with the processor further being adapted to, in the restricted mode, detect each person in the presentation space based upon the monitoring signal, define viewing spaces for each person in the presentation space and cause the image modulator and display to cooperate to present images that are discernable only within each viewing space.

61. The control system of claim 60, wherein the processor selects one of a general display mode and a restricted display mode based upon analysis of the content.

62. The control system of claim 60, further comprising a source of personal profile information wherein the processor selects a display mode based upon a personal profile obtained from the source of personal profile information.

63. The control system of claim 60, further comprising user controls wherein the step of selecting one of a general display mode and a restricted display mode comprises selecting a mode based upon a signal from the user control.

64. A control system for a display adapted to present light images to a presentation space, the control system comprising:

a detection means for detecting at least one person in the presentation space;

an image modulator for modulating the light images;

a processor for defining individual viewing spaces around each person with each viewing space comprising less than the entire presentation space and for causing the image modulator and display to display content only to the individual viewing spaces.

65. The control system of claim 64, wherein said image modulator comprises an optical barrier.

66. The control system of claim 64, wherein said image modulator comprises an array of detectable optical pathways and said processor causes the optical pathways to be directed to the viewing space.

67. The control system of claim 64, wherein each of said optical pathways comprises a micro-lens.

68. A control system for a display adapted to present light images to a presentation space, the control system comprising:

- a detection means for detecting at least one person in the presentation space;
- an image modulator for modulating the light images;
- a processor adapted to obtain images for presentation on the display, to determine a profile for the obtained images and to select a mode of operation based upon information contained in the profile for the obtained images, wherein the processor is operable to cause the display to present images in two modes and selects between the modes based upon the images profile information, and wherein in one mode the images is presented to the presentation space and in another mode at least one viewing space is defined around each person with each viewing space comprising less than the entire presentation space and to cause images to be formed on the display in a way such that when the images are modulated by the image modulator so that the images are only viewable to a person in the at least one viewing space.

69. The control system of claim 68 further comprising a directional audio system adapted to direct audio signals to a portion of the presentation space, wherein the processor is further adapted to direct audio signals associated with the images to the viewing space.